

## ABSTRACT OF THE DISCLOSURE

A crosslinkable second-order nonlinear optical polymer having one or more polarizable chromophore moieties, one or more diene moieties, and one or more dienophile or dienophile precursor moieties, wherein the diene and dienophile moieties are reactive to form 4+2 cycloaddition products; a crosslinked second-order nonlinear optical polymer having aligned, polarizable chromophore moieties and one or more 4+2 cycloaddition moieties, wherein the 4+2 cycloaddition moieties are reversibly, thermally reactive to provide diene moieties and dienophile moieties; lattices and devices that include the crosslinkable second-order nonlinear optical polymer; lattices and devices that include the crosslinked second-order nonlinear optical polymer; and methods for making the crosslinked second-order nonlinear optical polymer.